

IN THE CLAIMS:

Please amend the claims to read as follows:

1.(currently amended) A reactor apparatus including a hollow support element adapted to be rotatable about an axis, the support element having a first, external reaction surface and a second, internal heat transfer surface and means for applying a heat transfer fluid to the second surface, the first and second surfaces being in thermal communication with each other and the support element including an internal space bounded on one side by the second surface, wherein a plate or membrane is provided inside the hollow support element, the plate or membrane extending substantially over the whole internal space so as to define a first space between the second surface and one side of the plate or membrane and a second space between an opposed side of the plate or membrane and an internal surface of the support element remote from the second surface, but leaving a gap at a periphery of the plate or membrane so as to allow a heat transfer fluid to flow between the first and second spaces, wherein the opposed side of the plate or membrane is provided with vanes, fins or other projections or with a mesh or gauze or foam, these being configured so as to help prevent formation of free vortices in the heat transfer fluid, and further comprising a feed means for supplying at least one reactant in a fluid phase to the external reaction surface.

2.(previously presented) A reactor as claimed in claim 1, wherein the means for applying a heat transfer fluid comprises a fluid feed to an axial portion of the first space.

3.(previously presented) A reactor as claimed in claim 2, wherein the means for applying a heat transfer fluid comprises a feed tube passing along a hollow drive shaft connected to an axial portion of the support element, the feed tube being adapted to supply heat transfer fluid to the first space.

4.(previously presented) A reactor as claimed in claim 3, wherein a heat transfer fluid flow path is defined by the feed tube, the first space, the peripheral gap, the second space and a space provided between an external surface of the feed tube and an internal surface of the hollow drive shaft.

5.(cancelled)

6.(cancelled)

7.(previously presented) A reactor as claimed in claim 1, wherein the vanes, fins or other projections are radially oriented with respect to the axis of rotation.

8.(previously presented) A reactor as claimed claim 1, wherein the second surface is provided with a thermally conductive mesh, grid, corrugations or other projections which serve to increase a heat transfer area of the second surface.

9.(previously presented) A reactor apparatus including a support element adapted to be rotatable about an axis, the support element having generally opposed first and second surfaces, feed means for supplying at least one reactant to the first surface of the support element, collector means for collecting product from the first surface of the support element and means for applying a heat transfer fluid to the second surface, characterised in that the support element has a generally circular outer perimeter provided with a groove or indent thereabout and a circumferential baffle is fitted about the perimeter of the support element so as to project into the groove or indent while still allowing the support element to rotate freely, the circumferential baffle serving to keep separate reactant and heat transfer fluid which are thrown respectively from the first and second surfaces during operation of the reactor.

10.(previously presented) A reactor apparatus including a support element adapted to be rotatable about an axis, the support element having generally opposed first and second surfaces, feed means for supplying at least one reactant to the first surface of the support element, collector means for collecting product from the first surface of the support element and means for applying a heat transfer fluid to the second surface, characterised in that the second surface includes an axially located undercut trough into which the heat transfer fluid is supplied during operation of the reactor.

11.(previously presented) A reactor apparatus including a hollow support element adapted to be rotatable about an axis, the support element having a first, external reaction surface and a second, internal heat transfer surface and means for applying a heat transfer fluid to the second surface, the first and second surfaces being in thermal communication with each other and the support element including an internal space bounded on one side by the second surface, wherein a plate or membrane is provided inside the hollow support element, the plate or membrane extending substantially over the whole internal space so as to define a first space

between the second surface and one side of the plate or membrane and a second space between an opposed side of the plate or membrane and an internal surface of the support element remote from the second surface, but leaving a gap at a periphery of the plate or membrane so as to allow a heat transfer fluid to flow between the first and second spaces, wherein there is further provided a rotary impeller or fan mounted close to the first surface and operable to generate a gaseous flow from a periphery of the surface towards a central region thereof, this flow being counter-current to a flow of reactant on the first surface.

12.(previously presented) A reactor apparatus including a support element adapted to be rotatable about an axis, the support element having generally opposed first and second surfaces, feed means for supplying at least one reactant to the first surface of the support element, collector means for collecting product from the first surface of the support element and means for applying a heat transfer fluid to the second surface, characterised in that the support element has a generally circular outer perimeter provided with a groove or indent thereabout and a circumferential baffle is fitted about the perimeter of the support element so as to project into the groove or indent while still allowing the support element to rotate freely, the circumferential baffle serving to keep separate reactant and heat transfer fluid which are thrown respectively from the first and second surfaces during operation of the reactor, wherein there is further provided a rotary impeller or fan mounted close to the first surface and operable to generate a gaseous flow from a periphery of the surface towards a central region thereof, this flow being counter-current to a flow of reactant on the first surface.

13.(previously presented) A reactor apparatus including a support element adapted to be rotatable about an axis, the support element having generally opposed first and second surfaces, feed means for supplying at least one reactant to the first surface of the support element, collector means for collecting product from the first surface of the support element and means for applying a heat transfer fluid to the second surface, characterised in that the second surface includes an axially located undercut trough into which the heat transfer fluid is supplied during operation of the reactor, wherein there is further provided a rotary impeller or fan mounted close to the first surface and operable to generate a gaseous flow from a periphery of the surface towards a central region thereof, this flow being counter-current to a flow of reactant on the first

Appl. No. 09/775,278
Response dated April 26, 2006
Reply to Office Action of August 30, 2005

surface.

14. (new) The reactor apparatus of claim 1, wherein the external reaction surface has a center and the feed means supplies the at least one reactant in a fluid phase to the center.